NATIONAL ENDOWMENT FOR THE HUMANITIES

SAMPLE APPLICATION NARRATIVE

Grants to Preserve and Create Access to Humanities Collections
Institution: Colorado State University

Grants to Preserve and Create Access to Humanities Collections: A Project to Digitize Collections to Enhance Accessibility
Institution: Colorado State University

The Western Waters Digital Library: The Foundations of American Water Policy
Project Description and Significance

Colorado State University, in collaboration with four other academic libraries, proposes to expand the Western Waters Digital Library (WWDL) by providing integrated access to archival holdings related to water policy and environmental history for the Colorado and Columbia River basins. We will create an initial on-line repository of twenty-nine Encoded Archival Description (EAD) finding aids for 558 linear feet of archival collections and digitize approximately 20,000 images from selected resources in those collections for inclusion in the WWDL. In addition, we will link the digital files directly from the finding aids, resulting in significantly enhanced access to archival and manuscript materials for historians and other scholars, faculty, and students. This project will expand the productive collaborative relationships established during the 2003-2005 WWDL pilot project between CSU and additional institutions with demonstrated leadership in water archives and digital libraries, including: Brigham Young University; the University of California at Berkeley; the University of Utah; and Washington State University.

The project will create an on-line network of finding aids to key archival multimedia and manuscript collections related to the impact of water law and policy on the life and landscape of the West. The participating libraries currently offer on-line access to EAD finding aids for sixteen of the selected collections. For the other collections, we will convert approximately 170 pages of inventories for seven collections to EAD format and arrange and describe six collections in new finding aids. Providing on-line access to the finding aids and the digitized materials will complement traditional archival research and encourage scholars to utilize archival holdings on-site.

The proposed project will engage a sixteen-member team of archivists, librarians, and technical experts with significant expertise in dual areas pertinent to this project. The faculty advisors, including environmental and western historians with significant expertise in western water issues, will provide advice on the selection of digital materials based on research value, uniqueness, and demand by faculty and other scholars. Best practices for physical processing of archival materials, encoding finding aids, digitization, application of metadata, and preservation of digital files will be employed throughout every stage of the project. The result of this project will be increased integrated access to the archives of five WWDL libraries that shed light on the legal and historical legacy underpinning the water issues Westerners face today. Another outcome will be the creation of a model of scholarly water information resources to expand to other WWDL contributors and other archives. The value of increasing intellectual access to both archival and digital materials for the WWDL is critically important for research into the historical, legal, economic and environmental precedents that influence contemporary water issues.

NEH Grants to Preserve and Create Access to Humanities Collections

Institution: Colorado State University

The Western Waters Digital Library: The Foundations of American Water Policy

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The Western Waters Digital Library:
The Foundations of Western Water Policy

Significance

"Here is the land where life is written in water,
The West is where the water was and is" [1]
Thomas Hornsby Ferril

Colorado State University, in collaboration with four other academic libraries, proposes to expand the Western Waters Digital Library (WWDL) by providing integrated access to archival holdings related to water policy and environmental history for the Colorado and Columbia River basins. We will create an initial on-line repository of twenty-nine Encoded Archival Description (EAD) finding aids for 558 linear feet of archival collections and digitize approximately 20,000 images from selected resources in those collections for inclusion in the WWDL. In addition, we will link the digital files directly from the finding aids, resulting in significantly enhanced access to archival and manuscript materials for historians and other scholars, faculty, and students. This project will expand the productive collaborative relationships established during the 2003-2005 WWDL pilot project between CSU and additional institutions with demonstrated leadership in water archives and digital libraries, including: Brigham Young University; the University of California at Berkeley; the University of Utah; and Washington State University.

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The arid American West was successfully settled and developed because of its natural resources, especially its great rivers. Rivers were dominant factors in complex ecosystems that sustained plants and animals, native cultures, and the explorers and pioneers who moved across the landscape in ever-greater numbers beginning in the 16th century. Rivers irrigated fields, provided transportation, carried waste, and generated the electric power that drove economic development. Over the last one hundred and fifty years, river water has been collected, divided, given away, sold, fought over, and above all, used prodigiously. Water policy shapes the growth of the region, sometimes in unsustainable ways. For example, "The Colorado River Compact allocated 17.5 million-acre feet annually among the upper basin, lower basin,

and Mexico [but the] actual annual flow since 1930 has averaged about 12 million acre feet." [2]

In his *Report on the Lands of the Arid Region of the United States*[3] (1879), John Wesley Powell estimated that there was only enough water in the lands west of the 100th Meridian to make less than 3% of the land arable. This estimate has proved remarkably accurate. In a dry land, life revolves around water. Land use decisions, land development, law, politics, and economic growth have all been shaped by water or the lack thereof. Westerners are inextricably connected to and dependent on the rivers that flow through their lands and lives; rivers have influenced their culture and community for centuries. As demand for land and water increases, Westerners must not only be able to determine and protect rights to water, but also to preserve the sanctity of their rivers. Daniel C. McCool, Director of the America West Center at the University of Utah, emphasizes that, "To a great extent the course of western development followed the course of western waters. The possession of water and the ability to use it determine who thrives and who perishes. Thus conflict over western water is not just a fight for economic advantage – it is a fight for survival." [4]

Realities facing Westerners today include high rates of population growth in mostly arid areas, intense competition for agricultural water, the effects of manufacturing, and concern about deteriorating health of aquatic ecosystems and water quality. Further exacerbating these realities is the current drought. Although cycles of drought are part of the history of the West, never before have such large populations been so dependent on the water that rivers provide. Newspaper headlines have warned of impending shortages and water rationing has occurred. Many experts believe that current levels of population growth and development coupled with climatic changes and pollution have set the stage for a severe and prolonged water crisis in western states. Issues surrounding the quality and distribution of our over-allocated but most precious resource are often fraught with controversy. The seriousness of the situation is evident in the U.S. Department of the Interior's recent report, *Water 2025: Preventing Crises and Conflict in the West* (2005), which declares "…if we do not act soon, water supply-related crises [in the West] will affect economies and resources of national and international importance."[5]

Critical water problems are not restricted to the West, or even the United States, and they deeply impact lives and environments all over the globe. Fast-growing states such as Florida, Georgia, and Texas face their own water-related dilemmas. Estuaries are polluted around the nation, and the recent hurricane-related flood in New Orleans illustrates how dramatically water problems also afflict humid regions. Millions around the world face acute water shortages and lack access to basic sanitation and safe drinking water. Water issues are so globally important that the United Nations has proclaimed the years 2005 to 2015 the International Decade for Action 'Water for Life,' the primary goal of which "is to promote efforts to fulfill international commitments made on water and water-related issues ..."[6]

Among the western states, federal ownership of land ranges from 31% to 92%, thereby engaging the federal government in a vast majority of the decisions about water management and use. In the current discussion of a drought plan for the Colorado River by the seven states included in the Colorado River Compact (Colorado, Wyoming, Utah, New Mexico, Nevada, Arizona and California), no one has yet agreed on a plan to share water. Plans proposed thus far have been opposed, since some states would receive less water than they do now.

The decisions and choices about water management and distribution in the American West profoundly influence society and environment. The issues related to the stewardship of our limited water resources are of critical importance and often controversial, drawing government, agriculture, industry, law, and environmental interests into the debate over the potential impact of plans and policies to provide future water supplies. However, efforts to research water policy decisions and the philosophy behind them can mean a difficult and protracted investigation. Pertinent materials on water are scattered across various libraries, archives, web sites, organizations, and cultural institutions throughout the West. Significant

materials are often hidden within the collections of these institutions, and there is no single point of access. With vast distances separating the institutions holding relevant content, it is not easy for scholars to explore these materials. Recognizing this challenge, and the need to support scholarship about the West's most crucial natural resource, the Western Waters Digital Library (WWDL) was launched in 2003 with the goal of making primary resources about water widely and conveniently available to an ever-widening audience, including the researchers, practitioners, and activists who are working to resolve water issues and protect the environment, as well as the educators, students and citizens who wish to become more informed.

The legal and historical archival documents selected for this project will enable researchers to gain insight into policy issues such as water supply, rights, and allocation and the changes in the western landscape from reclamation. Moreover, they provide a link between the humanities and policy, revealing attitudes and personal interactions that influenced water policy planning and management in the western states during a period in our history that continues to have profound ramifications today. These collections impart stories from varying viewpoints about how Westerners worked together in developing water policy and resolved conflicts over water. Access to such materials will furnish scholars and the public with valuable information on water policy and its social, economic and environmental impact. The project will also support interpretation of policy and discussion about the critical water issues that are faced in the West.

The WWDL collaboratively digitizes and makes accessible legal and historical documents for four western river basins: Columbia; Colorado; Rio Grande; and Platte. Considering that the WWDL covers a geographical area of over 60% of the United States and interest in water issues in the West extends far beyond its boundaries, digitization of vital documents is the best means of making these resources conveniently available. The addition of finding aids will provide context and understanding for the digital items. To enhance accessibility of the finding aids and the physical collections, participants will ensure that a full bibliographic MARC record with a link to the finding aid is created for each collection and entered in their local online catalogs and national-level union databases.

Finding aids, the primary tools for discovering content in archival and manuscript collections, can be more than stand alone documents. When brought together through one online interface, as proposed in this project, cross-searching finding aids can be extremely efficient for researchers. Additionally, with links provided directly from within finding aids out to objects digitized from the particular collection, the essential context of items can be retained. This provides for discovery and evaluation of digital content without needing to search multiple databases separately.

The materials proposed for digitization will be selected based on the importance of online accessibility for researchers. Selection will be based on previous demand from water archive and special collection patrons and on feedback from researchers, faculty, students and other users collected throughout the implementation of the WWDL. The proposed materials, described in detail beginning on the following page, include the papers of the National Water Resources Association, Colorado Water Congress Newsletters, the Colorado River Bed Case transcripts, holographic Utah territorial documents, Pioneer Cooperative Irrigation Records, and the unpublished papers of key figures in the development and implementation of western water law and policy, including:

Delph E. Carpenter
Ival V. Goslin
Robert E. Glover
James L. Ogilvie
Frank A. Banks
Clifford Koester
Frank Adams
John S. Eastwood
Charles H. Lee
Thomas H. Means
Milton Norman Nathanson
James D. Schuyler

John S. Boyden
Stephen G. Boyden
Floyd A. O'Neil
C. Gregory Crampton
E. Richard Hart
Dorothy Harvey
Frank A Banks
Clifford Koester
Edward Hyatt
Joseph B. Lippincott

The five participating libraries listed below are widely recognized as leaders in water archives and collaborative digital projects, and bring exceptionally strong working relationships established during the creation of the WWDL to this project. Furthermore, their archives offer resources instrumental to the investigation of western water issues.

1. Colorado State University (CSU), Morgan Library, Water Resources Archive
2. Brigham Young University (BYU), Harold B. Lee Library, L. Tom Perry Special Collections
3. University of California at Berkeley (UCB), Water Resources Center Archives
4. University of Utah (U of U), J. Willard Marriott Library, Special Collections
5. Washington State University Libraries (WSU), Manuscripts, Archives and Special Collections

CSU and UCB offer dedicated water resource archives. BYU, the UofU, and WSU offer vast archival holdings on the history of the West containing extensive collections specifically related to this project. Collectively the project libraries provide a synergistic institutional network, significant archival resources, and demonstrated effectiveness in the development of collaborative digital libraries. An overview of the archives of the participating libraries and a detailed description of the significance of the collections proposed for inclusion in this project follows. The materials detailed below will inform current-day discussion on such topics as the ambiguities of the Law of the River; guiding principles and intentions of original signers of compacts; reclamation policies and their relationship with communities and their environments, particularly through the construction of dams and diversions; and the role of individuals, associations and government in water resources decision-making. This project will further build upon the materials produced in the WWDL pilot project pertaining to the Colorado and Columbia basins and allow integration of rich content as further described in the following sections. The materials described portray the involvement of policy makers, specialists and ordinary people in the development of water policy and resolution of water conflicts.

CSU Water Resources Archive

The CSU Water Resources Archive (WRA) is a joint effort of the University Libraries and the Colorado Water Resources Research Institute. Formally begun in 2001, the Archive consists of collections from individuals and organizations that have been instrumental in the development of water resources in Colorado and the West. Subject strengths include engineering studies, legislation, law, policy, and management. Document types within the collections are numerous, ranging from meeting minutes, reports and correspondence to maps, photographs and audio tapes.

The Papers of Delph E. Carpenter form the cornerstone of the WRA collection, containing a wealth of information on interstate river compacts and associated laws, legislation and water rights. The fact that it has had more than a dozen research uses in just the nine months it has been open to the public is a testament to the importance of this collection.

The WRA conducts extensive outreach, which has produced close ties with many significant organizations in the state, such as the Colorado Water Congress, the Colorado Water Conservation Board, the Colorado Water Resources and Power Development Authority, the Northern Colorado Water Conservancy District and the Central Colorado Water Conservancy District.

Papers of Delph E. Carpenter and Family, 63.75+ linear feet (with EAD finding aid)
Delph E. Carpenter (1877-1951), a lawyer from Greeley, Colorado, forever changed water law in the West. He conceived the idea of interstate river compacts to allocate water and became Colorado's Compact Commissioner, most notably for the Colorado River Compact (1922). A second compact, the Upper Colorado River compact, was negotiated in 1948. The Colorado River compacts are interstate agreements that divide the waters of the Colorado among all the states in the Colorado River Basin. The compacts are approved by Congress and have the effect of law; however there is no standard legislative history because they are negotiated directly by the states. CSU will digitize key materials related to the 1922 compact from this collection, which contains correspondence, photographs, maps, minutes, and drafts that will help researchers explore the development of the compact.

Papers of James L. Ogilvie, 15 linear feet (with EAD finding aid)
James L. Ogilvie (1911-1995), a civil engineer from Weld County, Colorado, had a long and fruitful career with the United States Bureau of Reclamation in the field of irrigation and water management. He worked on the Colorado-Big Thompson project and was the Project Manager for the Fryingpan-Arkansas Project in southeast Colorado. The collection contains professional files related to Ogilvie's career as well as desk diaries, which provide insight into the Bureau's work at the time.

Papers of Robert E. Glover, 55.5 linear feet (with EAD finding aid)
Robert E. Glover (1896-1984), a civil engineer from Ord, Nebraska, began his life-long career as an engineer in the Denver office of the U. S. Bureau of Reclamation in 1924. Contained within the collection are reports, notes, diaries, publications and correspondence documenting work on the Boulder (Hoover) Dam, the Owyhee Dam, the Gibson Dam and the Glen Canyon Dam.

Ival V. Goslin Water Resources Collection, 75+ linear feet (with EAD finding aid)
Ival V. Goslin (1911-1991) served as the first executive director of and later as special consultant to the Colorado Water Resources and Power Development Authority. The Authority (est. 1981) has conducted water project feasibility studies and created and implemented financing programs for water and wastewater infrastructures. The collection contains engineering, environmental, hydrologic and economic data surrounding water planning in the 1980s and represents a historical transition in water project development. Specific water project studies contained in the collection are: Coffintop Dam (St. Vrain), Castlewood Dam (Cherry Creek), Tunnel No. 1 (Clear Creek), Ranch Valley Dam (Fraser), Wolford Mountain Dam (Colorado) and Grey Mountain Dam (Cache la Poudre). The collection includes reports, maps, data and operational papers.

Colorado Water Congress Newsletters, 3 linear feet (to be arranged and described in EAD finding aid)
The Colorado Water Congress was established in 1958 and since then has proved to be a forward-thinking organization in terms of lobbying and educating in relation to current water issues in the state. Their newsletter, published as *Colorado Water Congress Newsletter* (1958-1982) and *Colorado Water Rights* (1982-present), has been the main mode of conveying various perspectives on significant water policy issues and covers the Colorado River and other basins. The publication, taken as a whole, shows trends, successes and failures for Colorado's water resources for a crucial period in the state's history. No research institution has a complete set of these newsletters; only nine libraries have any copies. CSU has a nearly complete set, and will work with the Colorado Water Congress to borrow missing copies for scanning purposes.

Papers of the National Water Resources Association, 7.5 linear feet (with EAD finding aid)
Formerly the National Reclamation Association, the National Water Resources Association is a federation of state organizations whose mission is to advocate federal policies and legislation for water resources on behalf of its members. The Association seeks to balance the needs of people and the environment for

issues involving water conservation, management and development. Colorado State University will digitize materials from the papers of the Association. The collection includes speeches, reports, photographs, correspondence and memoranda.

BYU, L. Tom Perry Special Collections

Founded in 1957, the L. Tom Perry Special Collections, Lee Library, Brigham Young University has available to researchers over 8,000 manuscripts collections and over 500,000 photographs, much of which pertains to Mormon and Western history.

Pioneer Cooperative Irrigation Records, 21 linear feet (to be arranged and described in EAD finding aid)
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The Mormon pioneers were the first Americans of northern European descent to adapt and advance agricultural practices to the semi-arid lands of the West. Collective irrigation was an important strategy that contributed to their dramatic success. This collection comprises Utah cooperative/corporate irrigation company records from which selections will be digitized including: Provo (Utah) Irrigation Company (1865-1882); the Rock Canyon (Provo, Utah) Irrigation Company (1881-1976); Huntington (Utah) Manufacturing and Agricultural Company (1876-1888); Mona (Utah) Canal Company (1873-1878), Salem (Utah) Canal Company (1873-1879); and the Heber (Utah) Canal Company. Major items include: articles of incorporation, company trust deeds, minutes of board meetings and resolutions, annual reports, legal documents, legal and business correspondence, tax records, and water use and management records. The records of this collection capture the entrepreneurial spirit of the people working for these companies and document the latter phases of the development of irrigation and water improvement efforts in Utah.

Holographic Utah Territorial Documents, 10 linear feet (to be arranged and described in EAD finding aid)
The first phase of irrigation development in Utah, which ends in the 1880s, was marked by the emergence of basic principles of water law and irrigation traditions and customs, on which the success of early Utah settlements squarely rested. Selected Utah territorial government holographic records will be digitized for the project, including the "Laws and a Constitution" (1849-1856) that contains policies related to water use in early Salt Lake City, and the Preamble and Articles of Agreement of the United Order of Millard County (1878-1880). The latter includes water claims and policies offering insight into 19th century Utah Territory and LDS Church economic and religious cooperatives.

University of California at Berkeley, Water Resources Center Archives

The Water Resources Center Archives (WRCA) at Berkeley was founded in 1957 to collect technical archival materials about all aspects of water development in California and the West. The Archives is nationally renowned for its extensive collections of written and visual primary source material. Its collections have been used extensively by scholars, faculty, staff and students to produce a variety of reports and historical monographs.

Enhancing access to the WRCA collections selected for this project will enable researchers to better understand the development of California water policy as well as the water rights, irrigation, and water policy issues pertaining to the Colorado and San Joaquin Rivers.

Papers of Frank Adams, 16 linear feet (with EAD finding aid)
Frank Adams (1889-1962) served as an irrigation economist for the California Agricultural Experiment

Station and the Giannini Foundation of Agricultural Economics. From 1926 to 1940 he served as a consulting engineer and economist for the U.S. Bureau of Reclamation. In 1928, Adams was an advisor to the International Water Commission for the United States and Mexico, and also advised the National Resources Committee in the Rio Grande Joint Investigation.
The collection contains reports, reprints, correspondence, clippings, and notes, concerning water, irrigation, and land settlement projects in California, the Western States; drafts of legislation pertaining to water, water rights, and irrigation districts; minutes of meetings of various sections of the Commonwealth Club of California; historical and statistical data on California irrigation districts; and extensive information on University of California Irrigation Investigations.

Papers of Joseph B. Lippincott, 42 linear feet (with EAD finding aid)
Lippincott (1882-1942) began his career as resident hydrographer for the State of California, with the U.S. Geological Survey. Beginning in 1902 he served with the U.S. Reclamation Service, supervising engineering activities from the Klamath River in Oregon to the lower Colorado River in Arizona and California. In 1906 he became assistant chief engineer of the Owens River Aqueduct. Upon the completion of the aqueduct in 1913, Lippincott entered private practice in Los Angeles, specializing in water supply for irrigation and municipal uses. He consulted for the federal government, the State of California, and various municipalities. As a member of the consulting board of the State of California, he aided in the development of a state-wide water plan. At the time of his death he was consulting engineer for the International Boundary Commission between the United States and Mexico, as well as consulting engineer for the U.S. Engineer Office, Los Angeles District, on the design and construction of numerous large flood control dams and appurtenant works. This extensive collection includes correspondence, reports, documents, news clippings, and several descriptive photograph albums pertaining to projects on dams, reservoirs, aqueducts, and other water supply works in California, Arizona, and other Western States.

Papers of Thomas H. Means, 7 linear feet (with EAD finding aid)
Thomas Herbert Means was born in 1875 in Virginia. His early career included nine years in the U.S. Department of Agriculture, during which he was in charge of soil surveys, principally in the western states. Later he served six years in the Bureau of Reclamation. In 1910, Means went into private consulting in San Francisco, specializing in engineering connected with agriculture, irrigation, drainage, reclamation and water supply. The collection contains correspondence and reports concerning the Colorado River and flooding in the Imperial Valley, the Hetch Hetchy Project, Los Angeles water supply, the Southern Sierra Power Company, the salinity of San Francisco Bay and Sacramento-San Joaquin River Delta, flood control and irrigation projects, groundwater, and land appraisal throughout California and other western states.

Papers of Milton Norman Nathanson Collection, 12 linear feet (to be arranged and described in EAD finding aid)
Milton N. Nathanson (1900-1990) was an attorney for the U.S. Department of the Interior. In 1947 he transferred from Washington, D.C. to Los Angeles to serve as the Assistant Regional Solicitor and Field Solicitor. Nathanson worked on water and power contracts, many of which characterized the landscape of the Southwest and continue to define water rights and transfers throughout the West, between the U.S. government and the states of California, Arizona, and Nevada. He was a member of the Colorado River Board and authored *Updating the Hoover Dam Documents* (U.S. Dept. of the Interior, Bureau of Reclamation, 1978). The collection consists of papers that document water rights and legislation on the lower Colorado River, Imperial Irrigation District, Arizona v. California, All-American Canal, and the Central Arizona Project. The collection consists of professional papers, correspondence, and legislative materials.

Papers of James D. Schuyler, 10.5 linear feet (with EAD finding aid)

James Dix Schuyler was born May 11, 1848, in Ithaca, New York. He worked as an engineer for the railroad until 1877, when he was made Chief Assistant State Engineer of California and oversaw the irrigation investigations in the Central Valley of California. Later, Schuyler devoted special attention to hydraulic engineering in general, designing and building water works in Denver, Portland, and numerous other cities. In the course of his long practice he was an advisor for a number of irrigation projects and domestic water supply works throughout the western U.S. During these years he also became known for the construction of dams by hydraulic fill--one of his first works of this type was the Lake Francis Dam, built for the Bay Counties Power Company in Yuba County, California.

A notable aspect of the Schuyler collection is the photographic record represented within the reports. Schuyler illustrated many of his reports with original black-and-white photographs. He also provided detailed captions describing them. Included among the photographs are many images documenting contemporary life in the communities in which Schuyler was consulting on waterworks projects. Photographs of public buildings, private residences, street scenes, and landscapes can be found alongside images of dams, canals, and other hydraulic structures.

Papers of John S. Eastwood Papers, 6 linear feet (with EAD finding aid)
John Samuel Eastwood was born on a farm near Minneapolis, Minnesota in 1857. He spent most of his life in California and became fervently committed to promoting regional economic growth and development. Eastwood's most noteworthy early work was usually associated with either irrigation development or the surveying of flumes and roads for logging interests in the Sierra Nevada. During this time he came to appreciate the significance of water control in the arid West as it related to economic growth. In the early 1890's he drew from his knowledge of the San Joaquin River watershed and, in developing a major water power system, gained prominence as a pioneer in the world of hydroelectric power technology. The collection contains correspondence, reports, designs, specifications, and photographs relating to dams, dam sites, and hydroelectric power plants in Arizona, California, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Wyoming, British Columbia, and Mexico.

Papers of Edward Hyatt, 3 linear feet (with EAD finding aid)
Edward Hyatt (1988-1954) began his thirty-five year career as an engineer for the California Highway Commission. In 1916 he transferred to the State Water Commission, an agency created to administer state laws pertaining to water rights. In 1921 the State Water Commission became part of the Division of Water Rights of the State Department of Public Works; Mr. Hyatt was appointed deputy chief and then chief of that division. In 1927 he was appointed State Engineer of California. Hyatt directed surveys which led to the development of the State Water Plan, the basis for the water conservation program in California, and of the Central Valley Project. The collection contains articles, addresses by Hyatt, and clippings pertaining to dams, water rights, salt water intrusion, hydroelectric power, the California Water Plan, and other aspects of water in California.

Papers of Charles H. Lee, 24 linear feet (with EAD finding aid)
Charles Hamilton Lee was a hydrographer for the U.S. Geological Survey until 1906, when he became assistant engineer for the city of Los Angeles. From 1906-1911, he was involved in design and construction of the Los Angeles Aqueduct. During this period his report on the groundwater basin of the Independence region of the Owens Valley was published as U.S.G.S. Water Supply Paper 294. From 1912-1917 he had his own practice as a civil and hydraulic engineer in Los Angeles, serving in 1912 as hydraulic engineer for the California State Conservation Commission. Work from this period is the earliest represented in this collection and deals primarily with water supply, both surface and groundwater, and irrigation. The collection contains reports, correspondence, documents, maps, photographs, and clippings pertaining to projects in hydraulics, sanitation, irrigation, municipal water supply, surface water and groundwater hydrology, and soil in California and other Western states, particularly for the City of Los Angeles regarding water supply from the Owens Valley.

University of Utah, Special Collections

Many of the original source materials digitized for the WWDL by the Marriott Library to date are held in its Special Collections Department archives. In part, the department's mission is to acquire and make available books, periodicals, documents, photographs, films, and original materials documenting the history of Utah and the West. The Manuscripts Division contains unpublished records, research materials, and personal papers of historians, activists, and lawyers that document the environmental and legal history of the Colorado and Columbia River basins. Many of these records pertain to tribal water rights and litigation. The Multimedia Archives contains collections of photographs, audio and video tapes of many formats, films, and other electronic media that document these same topics.

Multimedia Archives (MMA): Approximately one-hundred existing on-line EAD finding aids for multimedia collections pertaining to the Colorado River basin containing thousands of photographs as well as video and film are available in the MMA. These collections document the environmental histories of Flaming Gorge Dam, Glen Canyon Dam, Lees' Ferry, and the other areas in the Colorado and Columbia River basins from the early days of reclamation and river running to present times. Most of the MMA collections have been digitized and are available on-line through Special Collections or the WWDL. Co-PI Thompson and faculty advisor McCool will select digitized collections pertinent to this project for addition to the WWDL. Existing EAD finding aids will be improved to project specifications if necessary. A few representative examples from the Multimedia Archive are noted below.

Flaming Gorge Dam Photograph Collection: 16 black-and-white photographs taken by the US Bureau of Reclamation during the construction of Flaming Gorge Dam on the Green River. The photos depict several aspects of the construction of the dam, such as the building of the diversion tunnels, building the power plant access road, and blasting at the dam site. Construction of Flaming Gorge Dam, situated in the center of Red Canyon on the Green River in northeastern Utah, was begun in 1956. The dam was completed in 1963.

Glen Canyon Archaeological Survey Photograph Collection: 81 black-and-white prints which document part of the huge task of an archaeological survey of Glen Canyon prior to its flooding in 1963. This survey was headed by Jesse Jennings of the University of Utah Anthropology Department. The collection includes photographs of excavations, artifacts, cliff dwellings and some of the surveyors.

Charles Eggert Photograph Collection: Charles Eggert, a photographer and independent film maker, was actively involved in several conservation movements in the 1950s and 1960s, including the Echo Park Dam controversy; the creation of Canyonlands National Park; and the controversy over the proposed dams in the Grand Canyon. The collection includes photographs of his expeditions down the Green and Colorado Rivers in the 1950s to document the river canyons before the construction of Flaming Gorge and Glen Canyon dams. Eggert's river runs resulted in the films *Danger River* and *Canyon Voyage* (also in the Multimedia Archives), and *Wilderness River Trail* and *This is Dinosaur*, considered by modern historians to be instrumental in halting the construction of the proposed dam. The collection also includes photographs taken on the Eggert-Hatch expedition through the Grand Canyon in 1956 and in the Canyonlands region during the filming of *The Sculptured Earth* in the mid-1960s.

Manuscripts: Although many collections in the Manuscripts archives are completely processed and accompanied by a detailed finding aid, the process is not yet complete. The collections selected for this project do not yet have EAD finding aids. We propose to convert approximately 170 pages of inventories and complete partial EAD records for selected collections as necessary, and arrange and encode EAD finding aids for newly acquired or unprocessed collections. Descriptions of the archival collections identified for this project are noted as follows.

John S. Boyden Papers, 29.5 linear feet (convert 36-page inventory to EAD)
John S. Boyden (1906-1980) was a Salt Lake City attorney whose practice largely dealt with tribal matters. The collection offers information pertaining to Boyden's involvement in American Indian legal affairs, including those concerning the Ute, Hopi, Paiute, Shoshone, Bannock, Apache, and Zuni tribes, as well as the Indian Claims Commission. Boyden's political campaigns are documented in the collection, as is his involvement in Utah water issues. Examples of content to be considered for digitization include: Ute and miscellaneous Indian Matters: Water Right Claims. Uintah and Ouray Indian Reservation Utah. Rev. Aug 1964, ELD, Use of Indian Water in Developing Mineral Properties, Cedar City Water (4 boxes), Legislation from Rosebud Tribal court and Code of Offenses, Rosebud Indian Agency, 1943, 83d Congress, 1st Session regarding diversion of water supply from the Colorado River and providing certain benefits to the Colorado River Indian Reservation, Arizona.

Stephen G. Boyden Papers, 11.25 linear feet. (convert 16-page inventory to EAD)
The Stephen G. Boyden Papers (1945-1988) contain correspondence, legal files, articles, reports, studies, legislative material, pamphlets, newsletters, and news clippings pertaining to Boyden's career as legal council for various western tribes. As the son of John S. Boyden, Sr., he was exposed to Indian law and tribal representation at an early age. After receiving his law degree from the University of Utah in 1967, he represented the Ute, Hopi, and Zuni, Goshute, and Kaibab-Paiute tribes. He was an instructor for the National American Indian Court Judges Association and also served as assistant attorney general for the state of Utah. Items of interest for digitization from the Zuni Case Files include: Zuni River Watershed Act of 1990, Zuni Watershed Map, Zuni Water Appropriation Bill, and Zuni Conservation Enterprise.

Floyd A. O'Neil Papers, 4.25 linear feet (convert 16-page inventory to EAD)
The Floyd A. O'Neil Papers (1957-2000) contain documents from the Western Folklife Center, Indian Self Rule conference, Institute of the North American West, oral history transcripts, and other documents pertaining to O'Neil's career as a history professor at the University of Utah and as Chair of the Western Folklife Center. Items of interest for digitization include: documents form the Indian Self Rule Conference regarding the control of Indian resources, and a Division of Water Resources file about a meeting attended by representatives of the seven Colorado River Basin states and ten Indian tribes to discuss Colorado River and Indian water issues.

C. Gregory Crampton Papers, 20 linear feet. (convert 19-page inventory to EAD)
The C. Gregory Crampton Papers (1938-1979) include correspondence and manuscript drafts which provide information about the life of Utah historian C. Gregory Crampton. During his tenure as a history professor at the University of Utah, Crampton directed an historical survey of Glenn Canyon, was director of both the Doris Duke Indian Oral History Project and the Western History Center, and was associate editor for *The American West* magazine. Crampton conducted the historical salvage survey of Glen Canyon, mapping, photographing, and cataloging the hundreds of historical sites that are now forever flooded by Lake Powell. Highlights of the collection include unpublished manuscripts and research on the *Navigational History of the Bear River* (1975), *Land of Living Rock* (1972-1973), and undated research and maps for *Atlas of Indian History, 1968-1973*.

E. Richard Hart Papers, 50 linear feet (convert 16-page inventory to EAD)
Hart, a historical researcher, writer, editor, and director/organizer of conferences and institutions focusing on the environment and culture of the West, also prepared and presented historical background for the court cases that, over a period of years, secured rights and properties for the Zunis. Much of this collection contains research and drafts of the historical, anthropological, botanical, geographical, and geological papers written by Hart and others. Hart also worked with the Western Shoshone tribes, and some of that material is also found here. In addition, extensive historical research materials used for conferences, papers, and published articles and books are included. Documents for digitization include

Colville Tribal council meeting minutes and legal documents regarding Columbia River dams and salmon runs as well as historical documents on the Columbia River project.

The Dorothy Harvey Papers-114.5 linear feet (convert 61-page inventory to EAD)
The Dorothy Harvey Papers (1902-2005) is a collection of materials focused on the Central Utah Project (CUP), a water resource development program to optimize use of Utah's allocation of Colorado River water. Harvey, an advocate for wilderness areas and wildlife, worked on land management issues since the 1970's. She was an organizer of the Citizens for a Responsible CUP, aimed at informing the public of the impact of the CUP on land, wildlife and recreation. Items of interest for digitization include drafts and notes for an unpublished book on CUP, papers from Harvey's involvement with various advocacy organizations, and litigation materials.

The Colorado Riverbed Case, 6.25 linear feet (convert 5-page inventory to EAD
The Colorado Riverbed Case determined whether the State of Utah or the United States owned the bed of the Colorado River. The State of Utah wished to develop the bed of the river by drilling for oil and for other economic purposes. The outcome depended on whether the Colorado could be declared a navigable or a non-navigable river. The final decree was issued in 1931, giving possession of the riverbed to the United States in non-navigable sections of the Colorado River Basin in Utah and possession of navigable sections to the State of Utah. The decision of the court was dependent on the testimony of individuals who had personal experience with the Colorado River in Utah, including river runners, engineers and scientists with the U.S. Geological Survey or Reclamation Service (later the Bureau of Reclamation), petroleum geologists, and placer miners. It could be said that the Colorado Riverbed Case is the largest known history of the men and women who lived, worked, and played in the Colorado River basin in Utah prior to 1929. The legal transcripts thus offer insight into one of the foundational laws of the Colorado River as well as the cultural and environmental history of the region. Paper documents of the Colorado Riverbed Case appear to be very rare and are known to be archived in institutions such as the Utah State Historical Society and the Utah State Archives; they will be digitized for their value to researchers and historians. Only the official summary document has thus far been digitized and is available through the WWDL.

Washington State University-Manuscripts, Archives, and Special Collections

Manuscripts, Archives, and Special Collections (MASC) is a unit in Washington State University's Holland and Terrell Library that is primarily responsible for acquiring, administering, and preserving millions of non-circulating items, many of which are rare and unique. Collections consist of records and documents of historical value, including manuscripts, photographs, audio and video tapes, films, printed and published materials (books, maps, broadsides, etc.) on the history of the Columbia River Basin and the Northwest.

Frank A. Banks Papers, 15 linear feet (to be arranged and described in EAD finding aid)
Banks was the Bureau of Reclamation engineer who supervised the construction of the Grand Coulee Dam. The papers of Frank A. Banks (1883-1957) include his correspondence and engineering publications associated with the Grand Coulee Dam project. Other materials in this collection include notes, memoranda, official project histories, design and technical reports, and photographs dealing with Bureau of Reclamation projects in the Pacific Northwest. A small number of materials from his collection (approximately sixty photographs and sketches from a collection of 450 items) were included in the pilot phase of the WWDL.

Clifford Koester Papers, 2.5 linear feet (to be arranged and described in EAD finding aid)

Clifford R. Koester (1912-1991) worked for the Bureau of Reclamation from 1941 to 1961, as a journeyman electrician at the Leavenworth (WA) fish hatchery and the Grand Coulee Dam. The primary focus of this collection is the construction and operation of the Grand Coulee Dam; it includes an unpublished three-volume history of the dam and a substantial amount of ephemera (primarily newsletters and ephemera), as well as correspondence and photographs. The collection also includes materials related to larger questions about reclamation and development.
In his history of the dam, Koester focused on the contributions of laborers to the monumental project. In his dedication, he observed that "the ability and achievements of the planners and engineers have often been extolled elsewhere. I wish to speak now of the craftsmen and common workmen who toiled there, and gave a part of their lives to further this great work..."

This collective effort addresses concerns of humanists for identifying collections of relevance to the dominant issues which, both directly or indirectly, form and shape the social and cultural fabric of the West. The immediate effects of government policy and the national reclamation effort were to rekindle the economy and stimulate growth and development; however, the effects on the environment and local communities throughout the West have created new challenges that Westerners must now face. Having readily available, well-organized archival and electronic materials and finding aids in the WWDL will help facilitate research to address these issues. The WWDL makes materials immediately available that may otherwise involve travel to many sites to discover and use them.[5] The finding aids and their links to the digital images will assist users in deciding if they do want to work with the collections on-site. Often, materials are not available on interlibrary loan or the scholar may have a lengthy wait for a loan. Materials from the private collections may not otherwise be made available for research.

HISTORY, SCOPE, AND DURATION

History

The WWDL was launched in 2004 by the Greater Western Library Alliance (GWLA) with a National Leadership Grant from the Institute of Museum and Library Services (IMLS). GWLA is a thirty-one member organization of research libraries located west of the Mississippi River. Member institutions support common interests in programs related to scholarly communication, interlibrary loan, shared electronic resources, cooperative collection development, digital libraries, staff development, and continuing education. Twenty-five Greater Western Library Alliance libraries are also members of the Association of Research Libraries (ARL).

With support from an IMLS grant, twelve GWLA institutions across eight western states developed digital collections in the pilot phase of the WWDL (http://westernwaters.org) about four principal river basins: the Colorado, Columbia, Platte, and Rio Grande. The project included harvesting pertinent digital legacy collections and digitizing new materials focused on government surveys, water rights, compact agreements and support materials, reclamation, and state regulatory water issues. When the pilot phase was completed in November 2005, more than 109,000 digital images from twenty-three individual collections plus extensive reference materials became available for online viewing and searching, including government reports, classic water literature, legal transcripts, water project records, personal papers, photo collections, and video materials. The WWDL continues to grow, with contributions from the original IMLS grant participants plus new institutions.

Several collections provide a beginning record in the WWDL that will support the focus of this project for law and reclamation. The Kimble Northwest History Collection has at its core a set of articles that were collected and organized by employees of the New Deal era Works Progress Administration. This work was supervised by Dr. Herman Deutsch, then a Professor of History at Washington State College. Article coverage includes reclamation, water rights, genealogy, Northwest politics and regional growth. The

online collection consists of approximately 28,000 digitized objects with coverage from 1916 into the 1940s. The *Arizona v. California* collection includes the twenty-six volume exhibits and other summary documentation for the case. The Grand Coulee and Hoover Dam collections provide photographs, promotional and other materials about these dams.

Seminal reference works in the collection include: *One Third of the Nation's Land; History of Public Land Law Development; Ten Rivers in America's Future; Water Rights Laws in the Nineteen Western States; A Summary Digest of State Water Laws; and War for the Colorado River*. These works were digitized because of their rarity and on the advice of librarians and specialists in western water law. Other important works in the WWDL are: *Comprehensive Framework Studies on the Upper and Lower Colorado River* and other reports of the Colorado River Commission, *The Guadalupe Hidalgo Treaty*, and other books about treaties, documents and adjudications.

Scope

This project will add an on-line repository of at twenty-nine EAD finding aids and approximately 20,000 digital images. It will build upon the established WWDL framework to increase coverage, participation, content, and accessibility. The project team will analyze and implement the most appropriate of two options for searching the EAD repository: 1) aggregating finding aids from the partner institutions for the purposes of cross-searching, or 2) employing a federated search solution. The finding aids will meet the WWDL's selection criteria of water policy, law and legislation primarily for the Colorado and Columbia River basins. Essential to this project will be linking existing and newly created digital objects to their descriptions in the finding aids. Linking will be expected for every digital object that has a corresponding description in a submitted finding aid.

Duration

If this proposal is funded by NEH, it will span two years, beginning in July 2007 and ending in June 2009. The continued growth, maintenance, and longevity of the WWDL are top priorities among the libraries participating in this proposal. Each is firmly committed to its sustainability. This commitment includes, but is not limited to: provision of technical infrastructure, archival materials, and institutional resources, including the funding and personnel necessary to maintain and continue to build the collection. Our commitment is supported by the Greater Western Library Alliance (GWLA) which led the pilot phase of the WWDL. To help ensure the long-term growth and viability of the WWDL, the GWLA Board is working to fund a full-time project manager to coordinate multiple WWDL projects and pursue external funding to increase the institutional capacity for long-term development. This effort is led by Randy Olsen, University Librarian at BYU, who also chairs the GWLA Board of Directors.

All WWDL institutions are committed to maintaining their digital collections servers in perpetuity, and the University of Utah is equally committed to maintaining the aggregating server. Participating institutions have agreed in a Memorandum of Understanding to allow their WWDL digitized files and metadata to be archived by the consortium if some unforeseen development forces them to withdraw from the project.

METHODOLOGY AND STANDARDS

As Donald Waters noted in his 2006 paper, "Managing Digital Assets in Higher Education"[7]:

> Libraries and their institutions will increasingly be distinguished by the special collections of rare and unique materials that they hold and by the scholarly services they provide for these materials,

especially in conjunction with similar collections at museums and archives locally and around the world.

As described in this proposal, five academic institutions will digitize unique collection items, primary sources and collection finding aids relating to water resources and create links between these two forms of content. The project will follow accepted, published standards in its digitization and cataloging efforts. Finding aids encoded according to the guidelines for Encoded Archival Description (EAD) will be made accessible in the WWDL database. In some cases, pre-existing EAD content will be integrated so that materials being digitized in the proposal can be linked. In other cases, participants will encode new EAD finding aids.

The participating institutions will create a full MARC bibliographic record, when necessary, for each collection described in an EAD-encoded finding aid and contribute to their local online catalogs and the national union databases (OCLC WorldCat, the RLG Union Database), according to individual institutional requirements and memberships. The collection-level records will contain hypertext links in the 856 field to their related finding aids, resulting in enhanced accessibility.

The project will build upon the technical infrastructure used by the existing Western Waters Digital Library project. A CONTENTdm Multi-Site Server (MSS), installed at the University of Utah, will harvest metadata from the distributed sites and create a searchable index for the web site. The MSS is capable of harvesting data from CONTENTdm databases as well as from Open Archives Initiatives-Protocol for Metadata Harvesting (OAI-PMH) data providers. Project staffs at the institutions will digitize their own materials, utilizing best practices in imaging and metadata standards. Staff members will load the digital files and metadata into their local CONTENTdm server or into another OAI-PMH compliant system. The MSS, in turn, will be configured as an OAI-PMH data provider, exposing the aggregated WWDL metadata as a set to OAI harvesters such as OAISTER and Google.

Selection

The archival collections noted here were selected with input from the archivists at participating institutions, faculty advisors, and feedback from professional contacts and end-users regarding research needs. To inform this proposal, the UofU held a recent meeting of water experts to determine the most useful archival records for this proposal. Attendees included Co-PI Gregory Thompson, Technical Advisor Kenning Arlitsch, and:

Floyd O'Neil, Ph.D., Professor Emeritus, former Director of the America West Center
Dee Hansen, M.S., a forty-year veteran of water management in Utah, former Director of the Utah Division of Natural Resource, now Presidential appointee, Chair of the Bear River Commission
Floyd Wyasket, M.S., Ute Tribal Leader
Elizabeth Murphy, Ph.D., Professor, Geography, Co-PI on Water Conflict database project with Oregon State University for Bureau of Reclamation
Douglas R. Clark, Ph.D., Physical Scientist, Water Researcher, Bureau of Reclamation

The group agreed on the need for documents, photos, and maps depicting evolution of the impact of water usage and reclamation to present day, including primary treaties and compacts. The group also described the need for historical records pertaining to river law (unpublished documents, i.e. those that explain the reasoning behind early decisions in river law and implementation), reclamation (especially pre-dam photographs), and tribal water rights (records necessary for substantiating legal cases have often been inaccessible). This effort will serve as the basis for on-going meetings throughout the grant period at each participating institution to further develop content related to this project.

EAD Finding Aids

All finding aids submitted for the project will be required to utilize the eXtensible Markup Language (XML) Encoded Archival Description (EAD) Document Type Definition version 2002, endorsed and supported by the Society of American Archivists and the Library of Congress. The finding aids will meet the *RLG Best Practice Guidelines for Encoded Archival Description*.[8] Compliance will be verified by each institution through RLG's EAD Report Card. Each participant institution has significant experience with EAD creation, including encoding as part of consortia efforts (the Water Resources Center Archives through the Online Archive of California; Washington State University through the Northwest Digital Archives). Finding aids will be processed server side with an XSL style sheet to convert to HTML for display purposes, as not all web browsers are capable of reading XML documents.

The applicant institutions will examine alternatives for the handling of EAD content, including aggregated and federated solutions. An aggregated approach, CONTENTdm supports the indexing of EAD content. This indexing is described at http://contentdm.com/help4/acq-station/importing2a.html. Using CONTENTdm, a subset of an EAD document's information is extracted and placed into a full-text search field. This metadata record can be enhanced as needed to improve its indexing. The MSS could then harvest EAD content from CONTENTdm databases at participant institutions and from other databases that are OAI-PMH compliant.

Another approach for indexing EAD content would be to use a federated solution, such as the open source LibraryFind software currently being developed at Oregon State University, another WWDL project participant. The federated option would offer a real-time search of the distributed finding aid databases. In either case, links within the finding aids would be created using standard EAD tagging to lead directly to the digitized objects of those collections. Kenning Arlitsch will lead the team of archivists and technical experts (Cornish, Gunselman, Atwood, Westwood, Eldredge, and Rettig) through the assessment and determination of the EAD repository structure. The programmer and web designer at the U of U will construct and implement the repository.

The EAD finding aid software developed at the Marriott Library, University of Utah will help archivists create their EAD finding aids. The software application is written in Java and can be installed on any platform. The University of Utah is in the process of licensing the software as open source.

The application allows the user to encode finding aids with little knowledge of the detailed EAD tags or the DTD (Document Type Definition) structure. The user simply enters the information into a series of forms. Holding the mouse over the label of the text box indicates the EAD tag and URL reference for further explanation of the associated tag. Organizations, subjects, and genres can be added with the click of a button.

In the "Tools" menu, there is an option to select an XSL file for preview, PDF, or label. There are also options to change the country code, main agency code, and public ID. The user can also specify the directory location of the DTD here.

The information is written to a file in XML format when the forms are saved. Once the file is saved, it can be reopened and edited using the EAD software. The file is displayed in a web browser by using XSL (Extensible Stylesheet Language) to produce the HTML output. These stylesheets can be modified to suit individual website designs.

Training needs for use of the application will be identified upon project start-up.

Digital Collections

During the pilot phase of the WWDL, participants successfully implemented metadata standards to

promote more effective search and retrieval across the collections. By placing an emphasis on standards and principles of interoperability and scalability, project participants will continue to develop a digital environment that will evolve and keep pace with technical advances and the varying needs of its member institutions. Further, the metadata standards used in this project, *Western States Dublin Core Metadata Best Practices, 2.1*[9] and the *Open Archives Initiative Protocol for Metadata Harvesting*[10] will facilitate future interoperability with other similar regional consortia, such as the Western Trails Project (http://cdpheritage.org/westerntrails/) and the Mountain West Digital Library (http://mwdl.org).

Each participating institution is responsible for selection, confirming that the copyright and other permissions for materials being digitized have been obtained, and the preparation and processing of material. If preservation measures such as sleeving delicate materials for handling or repair of pages are necessary before scanning, they will be handled locally. Scanning will be conducted in-house or outsourced as dictated by local resources and staffing. In either case, digital image production will adhere to standard procedures and policies adopted for the WWDL as described in the Digital Library Federation's *Digital Library Standards and Practices* [11]document and in *Western States Digital Imaging Best Practices*[12] **.** The guidelines are posted on the WWDL web site and briefly described in this section.

The distributed nature of the WWDL allows each institution to establish its own processing workflow, provided that it adheres to the national guidelines outlined for the project. Digital images will be prepared for processing through the following steps:

1. Materials will be gathered by the participating institutions and a determination will be made for scanning in-house or outsourcing the scanning.

2. Materials will be digitally scanned by equipment appropriate to the materials' size and format. Particularly rare or fragile materials may be scanned via overhead camera. For bound textual documents de-binding will be considered if there are duplicates for the item.

    a. Resolution – minimum image resolution will follow the Western States Digital Imaging Best Practices document.
    b. Archival files will be saved as uncompressed TIFF.
    c. Display images will be compressed with JPEG, JPEG2000, or PDF as appropriate to the source material.

3. Optical character recognition (OCR) software will be run on textual materials to create separate text files. Acceptable OCR accuracy will be based on the source material type and condition. Text files will primarily be used for search purposes.

4. Image and text files will be batch-imported into the CONTENTdm Acquisition Station software or into another OAI-PMH-compliant database. Metadata will be applied to individual image files such as photographs or maps.

5. Files will be uploaded to the respective media server and indexed.

6. File metadata will be harvested by the Multi-Site Server (MSS), located at the University of Utah, and become searchable at http://westernwaters.org.

Organization of and access to material

The Western Waters web site offers both search and browse functions. The site was designed to be

simple and easy to navigate in order to accommodate a broad audience and is being continually revised and improved based on GWLA input and end-user feedback.

CONTENTdm is capable of presenting integrated access to image files and finding aids. A good example of this integration is a CONTENTdm EAD database at Oregon State University, accessible at http://digitalcollections.library.oregonstate.edu/cdm4/client/EAD/index.php?CISOROOT=/EAD.

Storage, maintenance, and protection of data

The WWDL is a decentralized project, and the participating institutions bear individual responsibility for the future viability of the materials they contribute. Each of the institutions participating in the WWDL signs a memorandum of understanding outlining their commitment to the long-term maintenance of the data they produce. Should their ability to maintain their WWDL digital collections become impaired, the participants agree to mount those collections on another participant's server so that the materials will continue to be available as part of the WWDL.

A two-pronged approach will be taken for digital preservation consistent with best practices outlined in Cornell University's *Digital Preservation Management: Implementing Short-Term Strategies for Long-Term Problems*[13]. Sites will archive copies of access and preservation files on online media storage, most commonly network drives configured in a RAID 5 array. A second copy of the digital files will be maintained at a secure off-site location using tape drives. Consistent with the recommendations of the UK Joint Information Systems Committee's Technical Advisory Service for Images, participants will monitor the environmental conditions of offline media storage and will periodically perform sample file restorations. Digital preservation methods will be continually reassessed throughout the project work. Participants further agree to refresh their files on a three to five-year cycle in accordance with DLF standards. All participating archives follow commonly accepted best practices in the care and preservation of their archival holdings.

WORK PLAN

Overarching Project Activity

The Principal and Co-Principal Investigator will guide the overall direction of the project. They will be responsible for planning, review of policies, and development, implementation, and evaluation of the project. The principal investigators will organize two meetings of the participating institutions each year at ALA and Salt Lake City to, plan, strategize, assess progress, verify adherence to standards and criteria, address problems as they emerge, and create solutions. In addition, the project manager will conduct functional (content development, technology, metadata) group meetings via monthly conference calls. Project teams will work to expand and strengthen the WWDL network of humanities scholars, advisors and end-users and to identify and respond to changing needs or requirements based on their feedback.

Stage I: Local Organization and Start-up

Stage I activities will implement the strategies necessary for the project within the first four months. These include the hiring of the project manager and the launching of the project with a meeting of principal investigators and participant representatives to review the communication channels, standards, schedule, reporting, evaluation and dissemination for the project. This meeting will introduce participants and help foster productive collaboration across the universities that will contribute to the aims of the project. It will also include discussion of local finding aid practices and any special situations of note. Encoding will be discussed to reach general consensus. Training needs related to EAD will be identified and a program for providing that training will be detailed.

Each participating institution will have a local coordinator who also has expertise in digital project management, an archivist, and a faculty advisor. Each team will be convened to review local content and create individual timelines within the time frame of the overall project. Copyright permissions will be verified for materials identified for inclusion. EAD, digitization and metadata protocols will be reviewed and local fields determined. Local issues may be identified and framed for referral to the principal investigators and project manager.

Stage II: Organization and Description of Archival, Creation of EAD Repository, Production of Digital Collections

The actual creation of the individual digital collections and finding aids is divided into quarterly phases over a period of eighteen months to facilitate meeting interim project deadlines and overall assessment at project milestones. The collection creation plan calls for the digitization of a minimum of 20,000 new files of images and creation of six new EAD finding aids during the proposed NEH grant period. Some of these files will require optical character recognition (OCR) processing to render them searchable. The procedure for creating digital collections by participants is outlined as follows and is based upon the experience of the WWDL and previously created digital projects:

1. Archivists, librarians, and faculty advisors collaborate to finalize selections for digitization.
2. Analog materials are converted to digital format according to nationally accepted standards. Scanning occurs in-house, or is outsourced to reputable commercial digitization firms. OCR software is employed as needed to create searchable text.
3. Digital files are imported into CONTENTdm or other system.
4. JPEG images and thumbnails for display are generated.
5. Archival files, if they have been created, are tracked.
6. Metadata is added to each object.
7. Finding aids are created and either added to distributed databases for federated searching or exported from other database systems into CONTENTdm for aggregated searching.
8. Links from within finding aids to digital objects are created.
9. Collection administrators at each institution approve the files and advise project management of availability for harvesting.
10. Web project pages are created.
11. Basic information about finding aids is added to the WWDL web site to explain to researchers what they are and how they are helpful.
12.

Phase III: Testing and Evaluating

Testing for the searchability of the materials and functionality of changes for scholars in the WWDL web site will occur throughout the project, as will verification of compliance with standards. During the last four months, we will test and also evaluate end-user satisfaction with both content and web site functionality in the scholarly, educational and public end-user arenas. Based upon this feedback, final changes will be made to the WWDL web site. We will also assess the overall effectiveness of the structure of this project and its applicability to other cooperative efforts. There will be a summary review of the technical functionality and quality of EAD, metadata, and digital files.

Timeline: The timeline for the project can be summarized as follows:

Start-up: months 1-4: Project start-up and local organization will occur during the first four months. Activities will include initial meetings and a review of the project timeline, selection policy, standards,

reporting, evaluation, dissemination and any issues that may arise.

Production: months 5-19: The majority of time will focus on creation of the individual digital collections and finding aids over a period of eighteen months. This phase will be divided into quarters to facilitate review of project milestones and the meeting of interim project deadlines. Selections will be finalized; scanning, file and metadata creation in CONTENTdm completed, EAD finding aids encoded, and web project pages created.

Assessment/Refinement/Evaluation-months 20-24: The final phase of the project will consist of a testing, review, and evaluation of web site searchability and functionality with advisors, the GWLA Digital Projects Task Force, other members of the WWDL, and other end-users.

Communication and Coordination

Clear, continuous, and open communication is vital to the success of any work plan, but it is especially so to one involving multiple contributors scattered across several states. Various means of communication were employed successfully in the WWDL pilot project, which completed its work on schedule as proposed to IMLS. These methods include:

Conference calls: A regular, monthly conference call is held to serve as a forum for reporting on current work, raising questions or concerns, and sharing experiences, lessons learned, and information. Additional conference calls are held on an ad-hoc basis to address specific issues, such as the uniform application of metadata standards.

Periodic progress reports: Each Project Coordinator submits a brief progress report, usually on a monthly or bi-monthly basis, depending upon the work currently in progress. The reports are designed to keep all concerned apprised of current work and to identify and address problems or concerns as they emerge.

Bi-monthly updates: The Project Manager distributes updates summarizing the progress reports and informing the teams of new developments and other pertinent information. In addition, the WWDL website provides password-restricted access to on-line internal administrative documents, including the project proposal, master project timeline, WWDL meeting minutes, institutional contact information and collection materials, and links to best practice guidelines.

Meetings: WWDL team meetings are held annually at American Library Association conferences, as every participating institution is normally represented at ALA. Two additional meetings will be held in Salt Lake City, Utah.

Management: The project manager oversees the work of local project coordinators to ensure compliance to standards and that the project stays on track. The project manager also oversees the budget, assumes the day-to-day management of project activity, facilitates regular and open communication among all participants, establishes and maintains relationships with faculty and end-user communities.

Local coordination: Each participating institution's project coordinator oversees and coordinates the work of the local team of subject and metadata experts and technicians. During the creation of the digital collections, the project coordinators will evaluate image and metadata quality

KEY STAFF

Principal Investigator Dawn Bastian, MLS, is a five-year veteran of digital project management at Colorado State University (CSU). In addition to local collection digitization, she led the development of

a portfolio-style repository that features award-winning undergraduate research and creative projects at CSU. Bastian also served as a member of the committee to develop the Western States Dublin Core Metadata Best Practices. As Coordinator of Metadata and Digital Services at CSU, she was the local coordinator for the pilot of the WWDL.

Co-Principal Investigator Gregory C. Thompson, Ph.D., has been Assistant Director of the Marriott Library, University Archivist, and Head of Special Collections since 1983. Thompson originated the idea of a digital library about water in the West. He is involved with over twenty professional and non-profit organizations related to western history and libraries. In addition, he has served for seven years on the Utah Humanities Council board, most recently as chair. Thompson was also Assistant Director of the American West Center at the University of Utah, and offers expertise in western history with particular emphasis on the tribal history of the region.

The PI and Co-PI will lead the project team, comprised as follows:

Colorado State University

Patricia Rettig, MLS, has been the archivist for the Water Research Archive of the Morgan Library since its early beginnings. She offers extensive experience with EAD and has been involved in several digital initiatives that incorporated archival materials, including development of the WWDL pilot project. She is the author of various published articles on archival resources, metadata, and digital initiatives.

Mark Fiege, Ph.D. teaches courses in American environmental history and the history of the American West. His research focuses on all aspects of historic water use in Colorado and the West and the interactions between people and nature, including water. Fiege is the author of *Irrigated Eden: the Making of an Agricultural Landscape in the American West* (1999), and other works about water in the West.

Brigham Young University

Cory Nimer, MLIS, is a Manuscripts Cataloger/Metadata Specialist with knowledge of archives and expertise in EAD.

Scott Eldredge, M.S., has managed the library's Digital Initiatives Program Manager for nearly ten years. He has been involved in various digital projects at BYU, including development and implementation of an electronic theses and dissertations program. He is currently serving on the executive board of the Networked Digital Library of Theses and Dissertations.

Brad Westwood, M.S., Chair, L. Tom Perry Special Collections Department, offers a twenty-two-year career as archivist at BYU and other institutions and consultant in archives management, records management, and historic preservation.

University of California

Paul S. Atwood, MLIS, Archivist and Head, Technical Services, WRCA. He offers experience in arrangement, description, and physical preservation of manuscript and photograph collections and development of EAD finding aids. Atwood developed the finding aids for the WRCA collection the California Digital Library's Online Archive of California and served as project manager for the J.B. Lippincott Los Angeles Aqueduct Photograph Digitization. He has a variety of publications to his credit and is active in several professional associations.

Linda Vida, MLIS, has been the Director of the Water Resources Center Archives (WRCA) since 1993, where she manages holdings that include 140,000 volumes of archival and contemporary material on all aspects of water resources. She has recently been co-curator of two exhibits on the topic of water, and is active in several professional associations. Vida provides in-depth knowledge of water issues in California and the West, WRCA holdings, research needs, and contacts with leading researchers in water and environmental issues.

Andrew Chang, Ph.D., is the Director of the Center for Water Resources (CWR), a system-wide multiple campus research unit of the University of California. CWR oversees the Water Research Center Archives at U.C. Berkeley. He has been a researcher and teacher at the University of California since 1971. He has taught undergraduate, graduate, and professional development courses on water-related topics and published over 200 various technical papers.

University of Utah

Kenning Arlitsch, MLIS. Arlitsch is Associate Librarian and Head of Information Technology for the Marriott Library. Arlitsch will oversee and advise on technical considerations of this project. He is one of the original GWLA Digital Projects Task Force members who founded the WWDL, and was also founder of the Mountain West Digital Library and the Utah Digital Newspapers Program, which was nationally recognized in 2004 with an award of merit from the American Association for State and Local History and in 2005 with recognition from NEH's *We the People* initiative.

Daniel C. McCool, Ph.D., is both Director of the America West Center and Director of Environmental Studies at the University of Utah. His research focuses on Indian water rights, water resource development, and public lands policy. He is the author of *Native Waters: Contemporary Indian Water Settlements and the Second Treaty Era* (2002) and *Command of the Waters: Iron Triangles, Federal Water Development and Indian Water* (1994), among others. He also edited two books with his students, *Waters of Zion: the politics of Water in Utah* (1995) and *Contested Landscape, the Politics of Wilderness in Utah and the West* (1999). He is currently writing a book about the river restoration.

Washington State University

Cheryl Gunselman, MLIS, Manuscripts Librarian, is co-PI on the Washington Preservation Initiative Project for prioritized preservation treatment of manuscript and photograph collections. Gunselman brings extensive knowledge of the holdings in Manuscripts, Archives, and Special Collections, is active in several professional associations, and has published in various journals.

Ingrid Mifflin, MLS, is Systems Librarian in charge of Digital Services and Collections. Mifflin supervised digital production for the WWDL pilot project and worked on a state-wide collaborative effort to plan and organize the digitization effort of the most important early newspapers in the State of Washington. She has published articles on cataloging and metadata in various journals.

Alan Cornish, MLIS. As the Head of Library Systems, Cornish works closely with Manuscripts, Archives, and Special Collections in directing and supporting WSU's digital collection efforts. He is also technical advisor on various collaborative digital projects including the Northwest Digital Archives, Western Waters Digital Library, and other digital initiatives, as well as author of numerous journal articles on digital archives, preservation, and digital collection management.

Laurie Mercier, Ph.D., is Associate Professor of History with a focus on the American West, the Pacific Northwest, immigration and migration, and American labor. She is former associate director of the

Center for Columbia River History, a former president of the Oral History Association, and co-director of the Columbia River Basin Ethnic History Archive project.

DISSEMINATION

The *Foundations of Western Water Policy* Project will be freely disseminated throughout the world on the Internet through the Western Waters Digital Library. As collections become available, they will be listed on the site as browse options, along with a search engine that queries the aggregating server. Information describing EAD, metadata, and technology processes will be posted on the website to will help others follow our model.

Conferences of organizations such as the Digital Library Federation, American Library Association, Association of College and Research Libraries, Society of American Archivists, meetings of regional chapters of relevant organizations and the GWLA membership meetings will provide scholarly fora where the project will be reported on and discussed. In addition to these professional activities, principal investigators and members of the project will share in the responsibility of publishing the experiences and findings of the project through one or more journals. Faculty advisors will also share this information through professional publications and at scholarly meetings.

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